

U.S. Patent Application Serial No. 10/564,633
Amendment filed August 24, 2009
Reply to OA dated March 23, 2009

REMARKS

Claims 2, 3 and 6-20 are pending in this application. Claim 7 is amended herein. Upon entry of this amendment, claims 2, 3 and 6-20 will be pending. Entry of this amendment and reconsideration of the rejections are respectfully requested.

No new matter has been introduced by this Amendment. Support for the amendments to the claims is discussed below.

Claims 6 and 7 are objected to because of informalities. (Office action paragraph no. 3)

a) Claim 6 recites the limitation “the inorganic ultrafine particles” in line 13. There is insufficient antecedent basis for this limitation in the claim.

This objection is respectfully traversed. Claim 6, at lines 6-7, recites that the “first ink-receiving layer ... contains at least inorganic ultrafine particles” This provides antecedent basis for the recitation in line 13.

b) Claim 7 recites the limitation “the inorganic ultrafine particles” in line 14. There is insufficient antecedent basis for this limitation in the claim.

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This objection is respectfully traversed. Claim 7, at lines 6-7, recites that the “first ink-receiving layer ... contains at least inorganic ultrafine particles” This provides antecedent basis for the recitation in line 14.

c) In claim 7, line 10, the term “an ink jet recording material according to claim 1,” is redundant.

The objection is overcome by the amendment to claim 7, correcting this typographical error.

Claims 6, 3 and 9-12 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kiyama et al. (US 2003/0072925 A1) in view of Mukoyoshi et al. (US 6,187,430 B1) and Nagashima et al. (US 2002/0182380 A1). (Office action paragraph no. 8)

Regarding base claim 6, Kiyama is cited (abstract) for teaching an ink jet recording material comprising a support, an ink receptive layer (A) nearer the support and an ink receptive layer (B) apart from the support, where ink receptive layer (A) comprises fused silica and ink receptive layer (B) comprises alumina hydrate. The Examiner states that Kiyama does not teach alumina hydrate in both layers.

Nagashima is cited for disclosing an ink jet recording material comprising at least one ink receptive layer, which comprise alumina hydrate. The Examiner considers Kiyama and Nagashima to be analogous

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art, and states that it would have been obvious to “replace the fumed silica of Kiyama with the alumina hydrate of Nagashima,” because this would “enhance the ink fixing properties of the layers” The Examiner states that Kiyama’s modified ink receptive layer (A) would correspond to the “first ink receiving layer” and Kiyama’s modified ink receptive layer (B) would correspond to the “second ink receiving layer.”

The rejection is respectfully traversed, and reconsideration is requested in view of the following arguments.

Kiyama generally discloses a two-layered ink receiving layer, in which paper is a possible support (paragraph [0016]). The Examiner alleges that the primer layer in Kiyama corresponds to the pigment layer in the present claims.

In claim 6, the structure of the ink jet recording material is formed by coating a coating solution of a pigment layer and the coating solution of an ink-receiving layer in succession on a side of a paper support. However, in Kiyama, the primer layer mainly comprises natural polymer, and Kiyama **does not disclose pigments in the primer layer**. The primer layer in Kiyama cannot correspond to the pigment layer in the present claims.

Moreover, Kiyama, paragraph [0066], states that when the support is a plastic film or a resin coated paper, it is preferable to provide a primer layer on the surface on which the ink-receiving layer is provided. That is, Kiyama does not even clearly suggest a primer layer in the case of a **paper support**. Therefore, there is no suggestion in Kiyama for a primer layer coated on a paper support. Therefore, even

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if Kiyama were modified as proposed by the Examiner, this would not result in the structure recited in the present claims.

Moreover, regarding the combination of Kiyama and Nagashima, in these references, an ink-receiving layer nearer to the support contains silica and another ink-receiving layer apart from the support contains alumina hydrate. Thus, the combination of these references would result in a two-layered ink-receiving layer, **both of which layers contain alumina hydrate**. There is no motivation for the substitution proposed by the Examiner.

Regarding Nagashima, Applicant notes that this reference states that the light transmitting support is preferably a film of a resin such as a polyester film (paragraph [0026]). The primer layer used in Nagashima is similar to that used in Kiyama (paragraph [0068]). However, the primer layer disclosed in Nagashima, as with the primer layer in Kiyama, is not a pigment layer, as can be seen from embodiments described therein. Again, Nagashima and Kiyama cannot be combined to produce the present invention.

Mukoyoshi relates to an ink jet recording sheet using a paper substrate, but the **ink-receiving layer is a single layer**. Therefore, the present invention having two ink-receiving layers cannot be produced from a combination of Mukoyoshi with Kiyama and/or Nagashima.

In addition to the above arguments, the present invention has effects that are unexpected over the cited references. As can be seen from in paragraph [0010], etc., of the present specification, the binder component or the like in the ink receiving layer is prevented from falling into the paper support, with the

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result that cracking of the surface of the ink receiving layer is prevented. In Kiyama or Nagashima, a binder component or the like does not fall into a non-absorbent support such as a resin-coated paper, a resin film or the like. Since this aspect of the present invention is irrelevant to Kiyama and Nagashima, this effect of the present invention is clearly unexpected over these references.

Evidence of this effect can be seen in Comparative Example 13 of the present application, in which a resin coated paper which is non absorbent is used as a support and a pigment layer is provided on the resin coated paper. Thus, the ink jet recording material of Comparative Example 13 would correspond to a combination of Kiyama or Nagashima with a pigment layer provided on the support. Comparative Example 13 causes only small cracks in the first ink-receiving layer but causes conspicuous cracks in the second ink-receiving layer.

Further regarding claims 12 and 20, which recite limitations on gas permeability, Kiyama and Nagashima are silent on gas permeability in the state of the pigment layer on the paper support.

Claims 2 and 13 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kiyama et al. (US 2003/0072925 A1) in view of Mukoyoshi et al. (US 6,187,430 B1) as applied to claim 6 above, and further in view of Totani et al. (US 2001/0009712 A1). (Office action paragraph no. 16)

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The Examiner cites Kiyama and Mukoyoshi as above for claim 6, and cites Totani as disclosing an ink jet recording sheet comprising an undercoat layer containing a pigment meeting the limitation of claim 2.

In response, Applicant has argued above that base claim 6 is not obvious over the combination of Kiyama, Mukoyoshi and Nagashima. The additional citation of Totani does not provide a suggestion or motivation for further modification that would overcome the deficiency in the *prima facie* case of obviousness for the base claim.

Claims 7, 8 and 15-19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kiyama et al. (US 2003/0072925 A1). (Office action paragraph no. 19)

Applicant respectfully notes that the Examiner also cites Mukoyoshi in the rejection, and apparently the rejection should have been stated as being over the combination of Kiyama and Mukoyoshi.

The rejection is respectfully traversed. Applicant notes that the present amendment to claim 7 is only to correct a typographical error made in the Amendment of March 4, 2009.

The Examiner cites Kiyama et al. as disclosing a support, ink-receptive layer A, and ink-receptive layer B. Kiyama's ink-receptive layer A contains silica and ink-receptive layer B contains alumina hydrate, consistent with the limitations of claim 7. Mukoyoshi is also cited as disclosing an undercoat layer comprising a pigment.

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In traversing the rejection, Applicant refers to the above arguments regarding the rejection of claim 6 over Kiyama, Mukoyoshi and Nagashima. Claim 7, similarly to claim 6, requires “coating a coating solution of a pigment layer and a coating solution of at least one ink-receiving layer in succession on at least one side of a paper support.” As argued above for claim 6, in Kiyama, the primer layer mainly comprises natural polymer, and Kiyama **does not disclose pigments in the primer layer**. The primer layer in Kiyama cannot correspond to the pigment layer in the present claims. There is no motivation in Kiyama for any modification that would produce the structure recited in claim 7. As argued above, Mukoyoshi relates to an ink jet recording sheet using a paper substrate, but the **ink-receiving layer is a single layer**. Kiyama and Mukoyoshi cannot be combined to produce the present invention.

Claims 14 and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kiyama et al. (US 2003/0072925 A1) in view of Mukoyoshi et al. (US 6,187,430 B1) as applied to claim 7 above, and further in view of Totani et al. (US 2001/0009712 A1). (Office action paragraph no. 27)

Applicant has argued above that base claim 7 is not obvious over the combination of Kiyama and Mukoyoshi. The additional citation of Totani does not provide a suggestion or motivation for further modification that would overcome the deficiency in the *prima facie* case of obviousness for the base claim.

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If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicants' undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Enclosure: Petition for Extension of Time

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